

#5
DEPT REF
Room 307

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **HAMAGUCHI, et al**

ATTN: Refund Section
Accounting Division
Office of Finance

Serial No.: 09/582,874

Group Art Unit: 2635

Filed: **July 6, 2000**

Examiner: **Matsuichiro SHIMIZU**

**FOR: ALERTING DEVICE AND RADIO COMMUNICATION DEVICE HAVING THE
ALERTING DEVICE**

REQUEST FOR REFUND

Commissioner for Patents
Washington, D.C. 20231

Date: April 5, 2002

Sir:

This is a request for a refund with respect to the charge to Deposit Account 01-2340 dated July 26, 2000 (Control Nos. 175 and 176) for the above-identified patent application. A copy of the monthly statement dated July 31, 2000, in which the error referred to occurs, accompanies this request.

The amount of the refund requested is \$18.00 for an additional claim over twenty and \$260.00 for multiple dependent claims for a total refund requested of \$278.00.

The U.S. National Stage application was filed in the U.S. Patent and Trademark Office on July 6, 2000. A preliminary Amendment was filed with the application on July 6, 2000. Claims 3, 4, 7-9, 11 and 14-17 were amended to remove multiple dependencies. The total number of claims filed was 17 total claims and 3 independent claims. Thus, no additional claims or multiple-dependent claims were present and the fees should not have been charged. A copy of the application transmittal, Preliminary Amendment and date-stamped postcard evidencing filing thereof are attached.

Adjustment Date: 12/03/2002 RWHITE1
7/26/2000 ERIANDO 00000087 012340 09582874
1 FC:966 18.00 CR
2 FC:968 260.00 CR

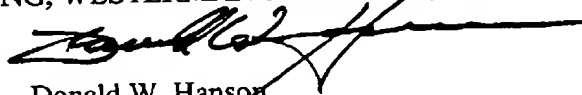
BEST AVAILABLE COPY

A check in the amount of \$880.00 was filed with the application. A copy of the cancelled check is attached hereto.

Please make the refund by crediting Account No. 01-2340.

Respectfully Submitted,

ARMSTRONG, WESTERMAN & HATTORI, LLP



Donald W. Hanson
Attorney for Applicant
Reg. No. 27,133

DWH/mla

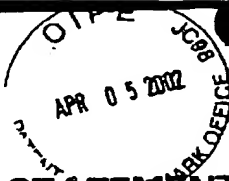
Atty. Docket No. 000831
Suite 1000, 1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930



23850

PATENT TRADEMARK OFFICE

Enclosures: Copy Monthly Statement of July 31, 2000
Copy of Amendment Transmittal
Copy of Preliminary Amendment
Copy of Date-stamped post card dated July 6, 2000
Copy of cancelled check no. 42668



UNITED STATES DEPARTMENT OF COMMERCE
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STATEMENT
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Account No.	012340
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Page	2

ARMSTRONG WESTERMAN HATTORI
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FINA

PLEASE SEND REMITTANCES TO:
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DATE POSTED			CONTROL NO.	DESCRIPTION (Serial, Patent, TM, Order)	DOCKET NO.	FEE CODE	CHARGES/ CREDITS	BALANCE
MO.	DAY	YR.						
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AN AMOUNT SUFFICIENT TO
COVER ALL SERVICES REQUESTED
MUST ALWAYS BE ON DEPOSIT.

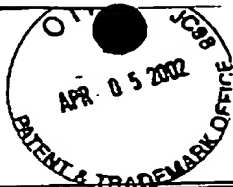
OPENING BALANCE
25054.61

TOTAL CHARGES
14731.25

TOTAL CREDITS
32912.00

CLOSING BALANCE
43235.36

*** O.D. INDICATES OVERDRAWN



ATTORNEY'S DOCKET NO: 000831

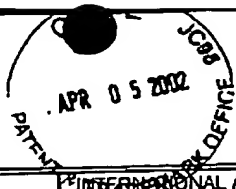
U.S. DEPARTMENT OF COMMERCE, PATENT AND TRADEMARK OFFICE		DATE: July 6, 2000
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		U.S. APPLN. NO. (if known):
INTERNATIONAL APPLICATION NO.: PCT/JP98/06014	INTERNATIONAL FILING DATE: DECEMBER 28, 1998	PRIORITY DATE CLAIMED: JANUARY 8, 1998
TITLE OF INVENTION: NOTIFYING DEVICE AND WIRELESS COMMUNICATIONS SYSTEM INCORPORATING SAME		
APPLICANT(S) FOR DO/EO/US: Toshihide HAMAGUCHI and Hirokazu GENNO		

Applicant hereby submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

- ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
- ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
- ☒ This express request to begin national examination procedures (35 USC 371(f)) at any time rather than delay examination until the expiration of the time limit set in 35 USC 371(b) and PCT Articles 22 and 39(1).
- ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
- ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2)):
 - ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - ☒ has been transmitted by the International Bureau.
 - ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
- ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
- ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - ☐ have been transmitted by the International Bureau.
 - ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - ☒ have not been made and will not be made.
- ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
- ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
- ☒ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

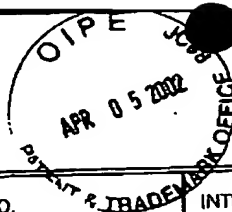
ITEMS 11. TO 16. BELOW CONCERN OTHER DOCUMENT(S) OR INFORMATION INCLUDED:

- ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
- ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
- ☒ A **FIRST** preliminary amendment.
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment
- ☐ A substitute specification.
- ☐ A change of power of attorney and/or address letter.
- ☒ Other items or information: 10 sheets of drawings and International Search Report



ATTORNEY'S DOCKET NO: 000831

U.S. APPLICATION NO. (if known)		INTERNATIONAL APPLICATION NO. PCT/JP98/06014		DATE: July 6, 2000			
17. <u>X</u> The following fees are submitted: Basic National Fee (37 CFR 1.492(a)(1)-(5): Search Report has been prepared by the EPO or JPO: \$840.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) \$670.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$690.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$970.00 International preliminary examination fee (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$ 96.00 ENTER APPROPRIATE BASIC FEE AMOUNT = \$ 840.00				CALCULATIONS		PTO USE ONLY	
Surcharge of \$130.00 for furnishing the oath or declaration later than <u> 20 </u> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).							
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE				
TOTAL	17 -20 =		X \$ 18.00				
INDEPENDENT	3 - 3 =		X \$ 78.00				
Multiple dependent claims(s) (if applicable)			+ \$260.00				
TOTAL OF ABOVE CALCULATIONS =				\$ 840.00			
Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).							
SUBTOTAL =				\$ 840.00			
Processing fee of \$130.00 for furnishing the English translation later than <u> 20 </u> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).							
TOTAL NATIONAL FEE =				\$ 840.00			
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$ 40.00			
TOTAL FEES ENCLOSED =				\$ 880.00			
				Amount to be:			
				refunded	\$		
				charged	\$		



ATTORNEY'S DOCKET NO: 000831

U.S. APPLICATION NO. (if known)	INTERNATIONAL APPLICATION NO. PCT/JP98/06014	DATE: July 6, 2000
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a. XX A check in the amount of \$ **880.00** to cover the above fees is enclosed. (This paper is filed in triplicate)


b. Please charge my Deposit Account No. 01-2340 in the amount of \$ to cover the above fees. (A duplicate copy of this sheet is enclosed.)

c. X The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 01-2340.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed to request that the application be restored to pending status.

Send All Correspondence To:

ARMSTRONG, WESTERMAN, HATTORI
McLELAND & NAUGHTON
1725 K Street, N.W. Suite 1000
Washington, D.C. 20006
(202) 659-2930


SIGNATURE

Donald W. Hanson
NAME

27,133
REGISTRATION NUMBER

DWH/yap

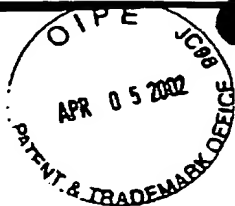
ARMSTRONG, WESTERMAN, HATTORI, McLELAND & NAUGHTON

Filing with EPO or JPO search Report
Recording Patent Assignment

840.00
40.00

42668

ROUTE TO: YAP



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Toshihide HAMAGUCHI et al.

Serial Number: Not Yet Assigned
(PCT/JP98/06014)

Filed: July 6, 2000

For: **NOTIFYING DEVICE AND WIRELESS COMMUNICATIONS SYSTEM
INCORPORATING SAME**

PRELIMINARY AMENDMENT

Director of Patents and Trademarks
Washington, D.C. 20231

July 6, 2000

Sir:

Prior to the calculation of the filing fees of the above application, please amend the application as follows:

IN THE SPECIFICATION:

Page 8, line 1, delete "signal preparing circuit prepares a";

line 2, change "varying in" to read --has a--, after "frequency" insert --which varies--, delete "predetermined"; and

lines 3 and 4, delete "feeds the drive signal to the vibrator" to read --matches the resonance frequency during variation--.

Page 11, line 6, delete "predetermined".

Page 23, line 21, after "signal" change "preparing" to --processing--.

Page 27, line 8, change "variation" to --frequency--.

Page 28, line 18, change "variation" to --modulation--.

IN THE CLAIMS:

Claim 1. (Amended) A notifying device comprising a vibrator to be resonated by a drive signal fed thereto, and a signal preparing circuit for feeding the drive signal to the vibrator at the time of notifying operation, the notifying device being characterized in that the [signal preparing circuit prepares a] drive signal [varying in] has a frequency which varies within a [predetermined] range including the resonance frequency of the vibrator and [feeds the drive signal to the vibrator] matches the resonance frequency during the variation.

Claim 3, line 1, delete "or 2".

Claim 4, lines 1 and 2, change "any one of claims 1 to 3" to read --claim 1--.

Claim 7, lines 1 and 2, change "any one of claims 1 to 6" to read --claim 1--.

Claim 8, lines 1 and 2, change "any one of claims 1 to 7" to read --claim 1--.

Claim 9, lines 1 and 2, change "any one of claims 1 to 8" to read --claim 1--.

Claim 10. (Amended) A wireless communications system comprising a notifying device for notifying the user of incoming calls, the notifying device comprising a vibrator to be resonated by a drive signal fed thereto, and a signal preparing circuit for feeding the drive signal to the vibrator at the time of notifying operation, the wireless communication system being characterized in that the signal [preparing circuit prepares a] drive signal [varying in] has a frequency which varies within a

[predetermined] range including the resonance frequency of the vibrator and [feeds the drive signal to the vibrator] matches the resonance frequency during the variation.

Claim 11, line 15, delete "determined".

Claim 14, lines 1 and 2, change "any one of claims 11 to 13" to read --claim 11--.

Claim 15, lines 1 and 2, change "any one of claims 11 to 14" to read --claim 11--.

Claim 16, lines 1 and 2, change "any one of claims 11 to 15" to read --claim 11--.

Claim 17, lines 1 and 2, change "any one of claims 11 to 16" to read --claim 11--.

REMARKS

The above proposed amendments is believed to correct typographical errors in the specification, remove the multiple dependency of the claims and placed the application in the same condition which have been amended in the international application PCT/JP98/06014. Early and favorable action is awaited.

In the event there are any additional fees required, please charge our Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, WESTERMAN, HATTORI,
MCLELAND & NAUGHTON

Atty. Docket No. 000831
Suite 1000
1725 K Street, N.W.
Washington, D.C. 20006
Tel: (202) 659-2930
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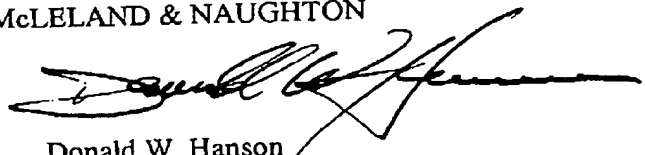

Donald W. Hanson
Reg. No. 27,133

FIG. 12 shows vibration characteristics a in a solid line as varied by dimensional tolerances, etc. to vibration characteristics b, c in a broken line, respectively. If a vibrator having the vibration characteristics b involving a variation is driven at the resonance frequency of the vibration characteristics a with no variation, no resonance occurs, and the amplitude of the vibrator will greatly decrease from a peak value W_p at the resonance point to a value W' . Thus in the case where the notifying unit is driven with a drive signal of given frequency without considering the variation of the resonance frequency, there arises the problem that variations occur also in the amplitude of the vibrator, failing to produce a satisfactory notifying effect.

Further portable telephones in recent years can be set in various operation modes, for example, to display the telephone number of the caller upon receiving an incoming call or to serve as a pager. In conformity with such a wider variety of operational functions, there arises a need for the notifying unit to give notification not only of incoming calls but also of the various modes in which the telephone is set.

Accordingly, a first object of the present invention is to provide a notifying device which produces

satisfactory notifying effects despite the variation in resonance frequency, and a wireless communications system incorporating the device.

A second object of the invention is to provide a
5 wireless communications system comprising a notifying device adapted for different kinds of notifying operations including notification of incoming calls to give satisfactory notifying effects despite the variation in resonance frequency.

10 DISCLOSURE OF THE INVENTION

To fulfill the first object, the present invention provides a notifying device comprising a vibrator to be resonated by a drive signal fed thereto, and a signal preparing circuit for feeding the drive signal to the
15 vibrator, the notifying device being characterized in that the drive signal has a frequency which varies within a range including the resonance frequency of the vibrator and matches the resonance frequency during the variation.

Even if the vibrator has a resonance frequency
20 involving a variation due to dimensional tolerances, etc. of the vibrator, the drive signal repeatedly varies in frequency within the predetermined range, so that resonance occurs to give a great amplitude when the frequency of the drive signal matches the true resonance

frequency during the variation. When the frequency of the drive signal thereafter becomes different from the true resonance frequency, the vibrator undergoes no resonance and exhibits a diminished amplitude, whereas the amplitude
5 increases when the signal frequency matches the true resonance frequency again. In this way, the amplitude of the vibrator repeatedly increases to the amplitude of resonance as a peak and decreases therefrom as the frequency of the drive signal varies.

With the notifying device and the wireless communications system incorporating the device according to the invention, periodic or nonperiodic occurrence of resonance repeatedly increases the amplitude of the vibrator to the amplitude of resonance as a peak and decreases the amplitude from the peak, affording effective notification which is audible or perceivable by the human body.

To fulfill the second object, the present invention provides a wireless communications system which has incorporated therein a notifying device for performing different kinds of notifying operations including notification of incoming calls, the notifying device comprising a vibrator to be resonated by a drive signal fed thereto, and a drive signal feed circuit for feeding the drive signal to the vibrator. The drive signal feed circuit comprises command signal preparing means for preparing notification command signals which are different for different contents of notification in conformity with the content, and drive signal preparing means operative in response to the notification command signal to prepare a drive signal which varies in frequency within a range including the resonance frequency of the vibrator and which differs in the state of variation for the different

notification command signals and to feed the drive signal to the vibrator.

Even if the vibrator has a resonance frequency involving a variation due to dimensional tolerances, etc. of the vibrator, the drive signal repeatedly varies in frequency within the predetermined range, so that resonance occurs to give a great amplitude when the frequency of the drive signal matches the true resonance frequency during the variation. When the frequency of the drive signal thereafter becomes different from the true resonance frequency, the vibrator undergoes no resonance and exhibits a diminished amplitude, whereas the amplitude increases when the signal frequency matches the true resonance frequency again. In this way, the amplitude of the vibrator repeatedly increases to the amplitude of resonance as a peak and decreases therefrom as the frequency of the drive signal varies.

Further in response to an incoming call or in accordance with other operation of the system, a specific notification command signal is prepared for notifying the use of the operation, and a drive signal is prepared with reference to the command signal for driving the vibrator in a different state of vibration. Upon receiving a usual incoming call, for example, a first drive signal is

prepared wherein the variation of the vibration frequency continues, based on an incoming call notification command signal. Upon receiving an incoming call from a specified caller, on the other hand, a second drive signal is
5 prepared which turns on and off with a predetermined period, based on a caller notification command signal. When the notifying device is driven with the first drive signal, resonance occurs with a predetermined period, whereas when the notifying device is driven with the
10 second drive signal, resonance occurs intermittently periodically. This difference in the mode of vibration enables the user to identify the caller.

What is claimed is:

1. (Amended) A notifying device comprising a vibrator to be resonated by a drive signal fed thereto, and a signal preparing circuit for feeding the drive signal to the vibrator at the time of notifying operation, the notifying device being characterized in that the drive signal has a frequency which varies within a range including the resonance frequency of the vibrator and matches the resonance frequency during the variation.
2. A notifying device according to claim 1 wherein the variation of the frequency of the drive signal corresponds to a variation in the resonance frequency of the vibrator due to tolerances of specifications on which the resonance frequency is dependent.
3. A notifying device according to claim 1 or 2 wherein the resonance frequency of the vibrator is a low frequency of up to hundreds of hertz, and the vibration of the vibrator has at the resonance frequency an amplitude generally perceivable by the human body.
4. A notifying device according to any one of claims 1 to 3 wherein the drive signal has an alternating waveform of rectangular waves or sine waves having a frequency periodically varying at 0.5 to 10 Hz.
5. A notifying device according to claim 4 wherein

the frequency of the drive signal periodically varies at 1.37 to 2.98 Hz.

6. A notifying device according to claim 5 wherein the frequency of the drive signal periodically varies at
5 2.18 Hz.

7. A notifying device according to any one of claims 1 to 6 wherein the frequency of the drive signal varies in the form of triangular waves, sine waves or sawtooth waves having the definite range as the amplitude thereof.

10 8. A notifying device according to any one of claims 1 to 7 wherein the frequency of the drive signal gradually increases or gradually decreases stepwise within the definite range.

9. A notifying device according to any one of claims
15 1 to 8 wherein the vibrator comprises a casing, a diaphragm having a fixed end on an inner peripheral wall of the casing, a magnet attached to a free end of the diaphragm, and a coil disposed as opposed to the magnet, and the drive signal is fed to the coil.

20 10. (Amended) A wireless communications system comprising a notifying device for notifying the user of incoming calls, the notifying device comprising a vibrator to be resonated by a drive signal fed thereto, and a signal preparing circuit for feeding the drive signal to

the vibrator at the time of notifying operation, the wireless communications system being characterized in that the drive signal has a frequency which varies within a range including the resonance frequency of the vibrator and matches the resonance frequency during the variation.

11. A wireless communications system having incorporated therein a notifying device for performing different kinds of notifying operations including notification of incoming calls, the notifying device comprising a vibrator to be resonated by a drive signal fed thereto, and a drive signal feed circuit for feeding the drive signal to the vibrator, the wireless communications system being characterized in that the drive signal feed circuit comprises:
 - 15 command signal preparing means for preparing notification command signals which are different for different contents of notification in conformity with the content, and drive signal preparing means operative in response to the notification command signal to prepare a drive signal which varies in frequency within a range including the resonance frequency of the vibrator and which differs in the state of variation for the different notification command signals and to feed the drive signal to the vibrator.

12. A wireless communications system according to claim 11 wherein the drive signal prepared by the drive signal preparing means varies in frequency continuously in conformity with the notification command signal or
5 intermittently at a specified period in conformity with the notification command signal.

13. A wireless communications system according to claim 11 wherein the drive signal prepared by the drive signal preparing means varies in frequency at a specified
10 period in conformity with the notification command signal.

14. A wireless communications system according to any one of claims 11 to 13 wherein the variation of frequency of the drive signal prepared by the drive signal preparing means corresponds to a variation in the resonance
15 frequency of the vibrator due to tolerances for specifications which govern the resonance frequency.

15. A wireless communications system according to any one of claims 11 to 14 wherein the resonance frequency of the vibrator is a low frequency of up to hundreds of hertz,
20 and the vibration of the vibrator at the resonance frequency has an amplitude generally perceivable by the human body.



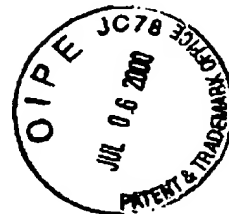
CARD NO: 08757

U.S. Patent Application Docket No: 000831
Serial No: NEW APPLN. Filed: 07/06/00
Patent Number: Issued:
Applicant(s): HAMAGUCHI, ET AL

Papers filed herewith on: 07/06/00

Fees: \$ 880.00
Assignment

New Application
Drawings
Declaration



Other: Pre-Amend w/Annex Trans/Int.Pre.Exam.Rpt; New
App-42 pgs; Drwgs-10 sheets; Intn'l.Search Rpt;

COMMISSIONER OF PATENTS

Receipt is hereby acknowledged of the papers filed as indicated
in connection with the above-identified case.

DWH/YAP

42668

STRONG, WESTERMAN, HATTORI, McLELAND & NAUGHTON
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202-659-2930

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JULY 6, 2000

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OUR REF: 000831

Christine Wheeler
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- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
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- ☐ **SKEWED/SLANTED IMAGES**
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- ☐ **GRAY SCALE DOCUMENTS**
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